GE HealthCare

Global Harmonization Working Party
GHWP Towards Medical Device Harmonization

AI in GE HealthCare

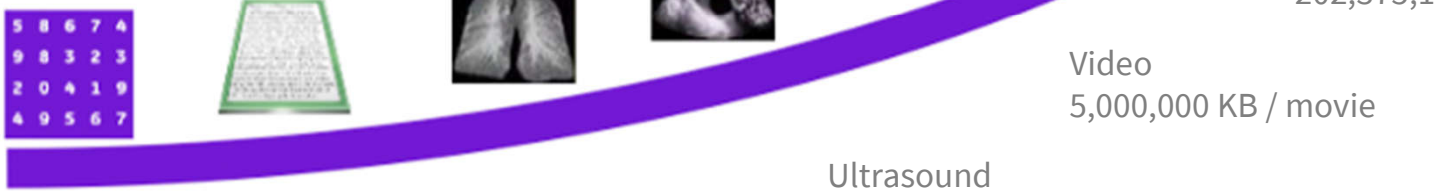
27th GHWP Annual Meeting and 27th GHWP TC Meeting, 27th - 30th Nov 2023 | Shanghai International Convention Centre

GE HealthCare Data Explosion

Growing at **48%** per year[2]

50 Petabytes

of data per hospital[1]



Traditional Data

Numbers
5 KB / record

Text
500 KB / record

2D Images
1,500 KB / image

Ultrasound
20,000 KB / waveform

Video
5,000,000 KB / movie

Hi-Res
202,375,168 KB / genome

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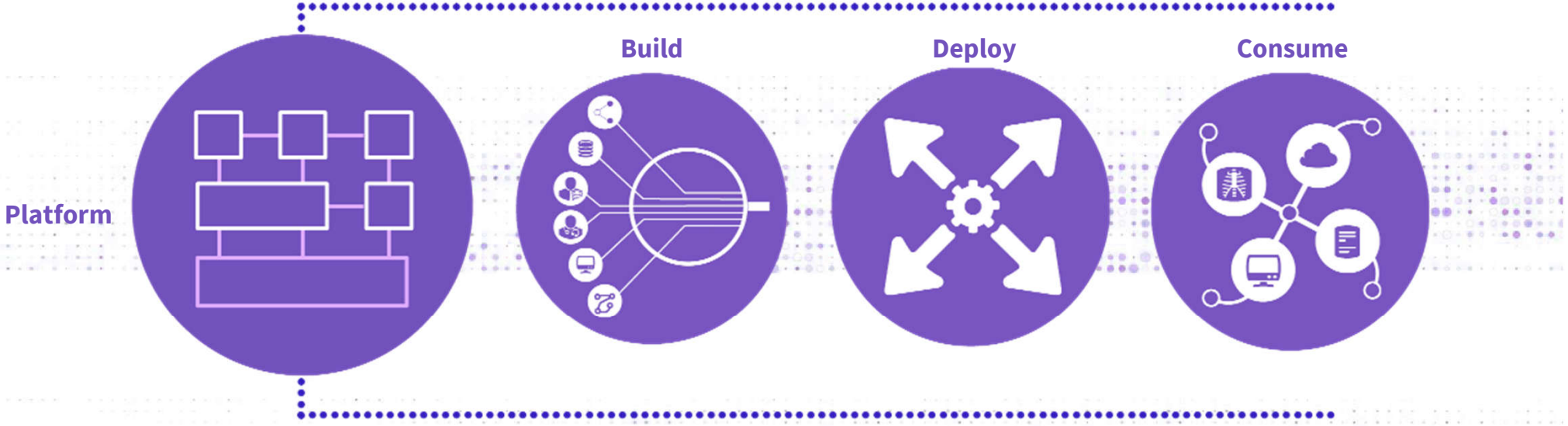
GE HealthCare is Enabling Precision Health with our Platform

Achieve Speed & Scale



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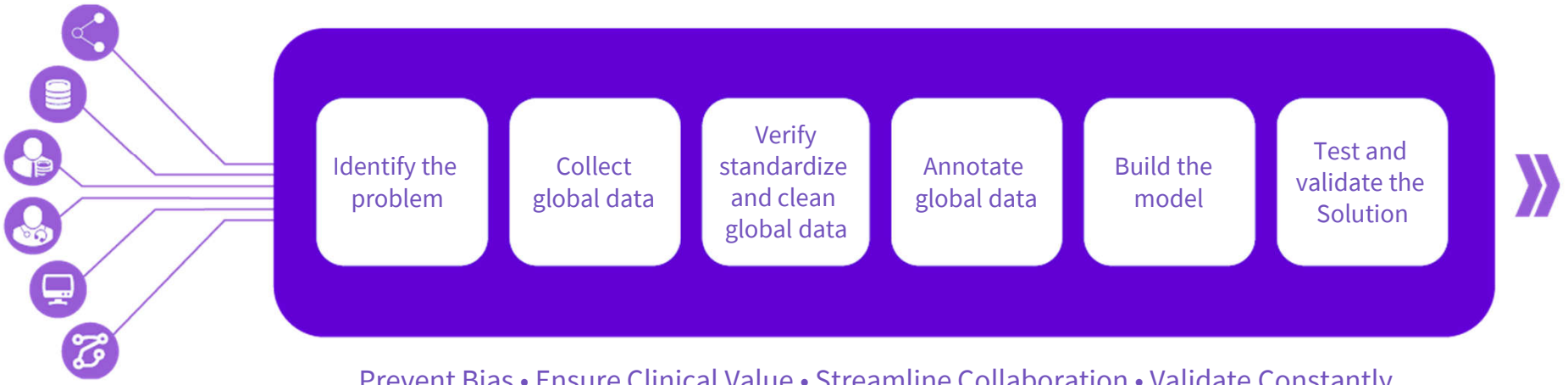
Stages of Building an Algorithm Model for Deep Learning

Solving the Challenge of the First Mile with the Edison AI Workbench

PLATFORM | BUILD • DEPLOY • CONSUME



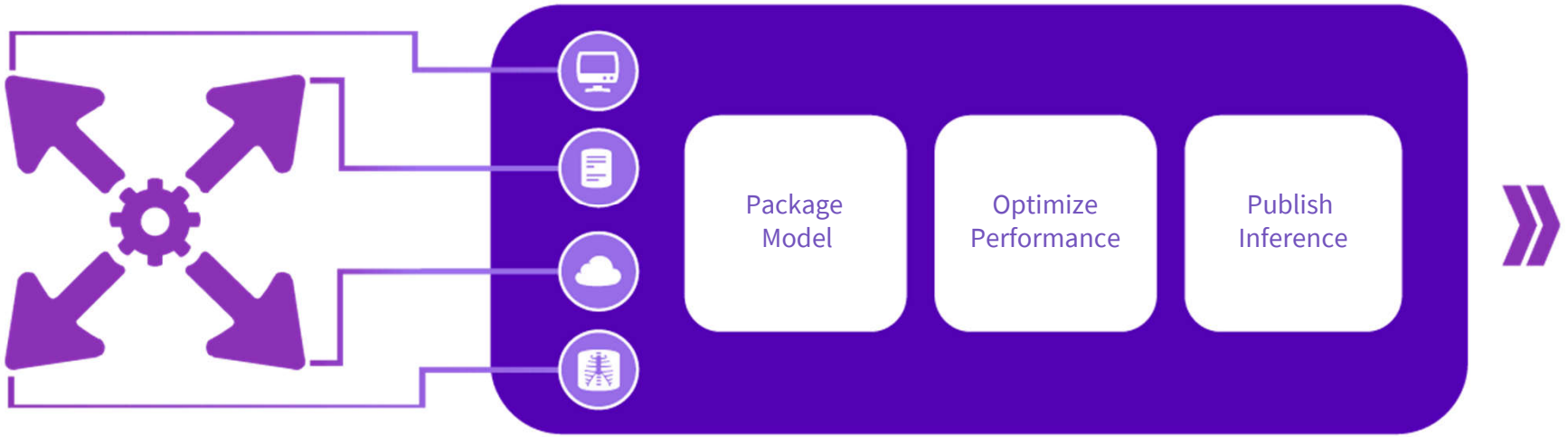
Prevent Bias • Ensure Clinical Value • Streamline Collaboration • Validate Constantly

GE HealthCare

Stages of Building an Algorithm Model for Deep Learning

Meeting Clinical Needs with Edison Inferencing Service

PLATFORM | BUILD • **DEPLOY** • CONSUME



Workflow Enhancement • Decision-Point Delivery • Invisible Integration

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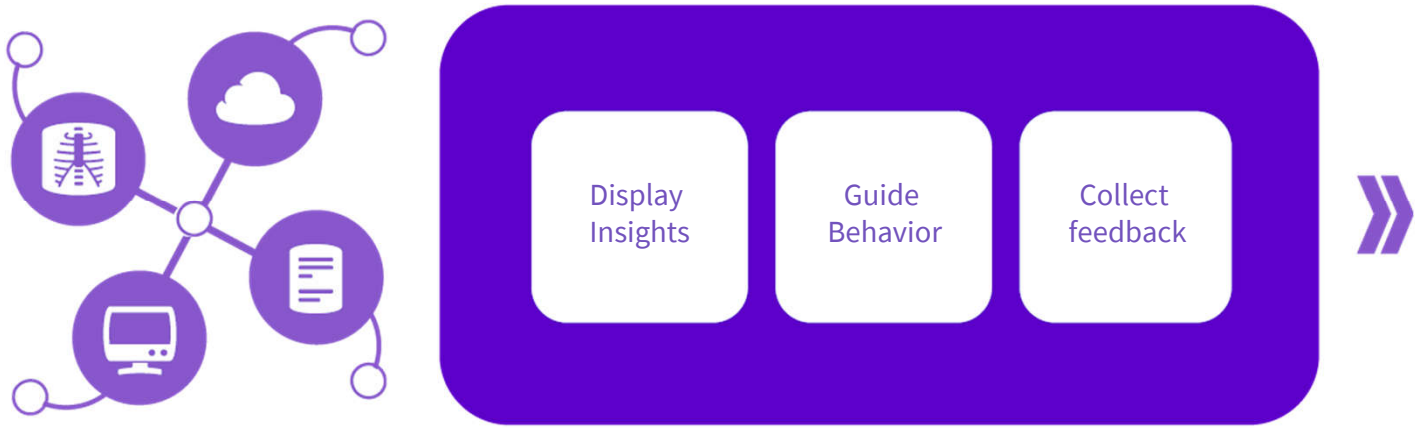
Stages of Building an Algorithm Model for Deep Learning

Delivering Precision Health with Edison Inferencing Service

PLATFORM | **BUILD** • **DEPLOY** • **CONSUME**

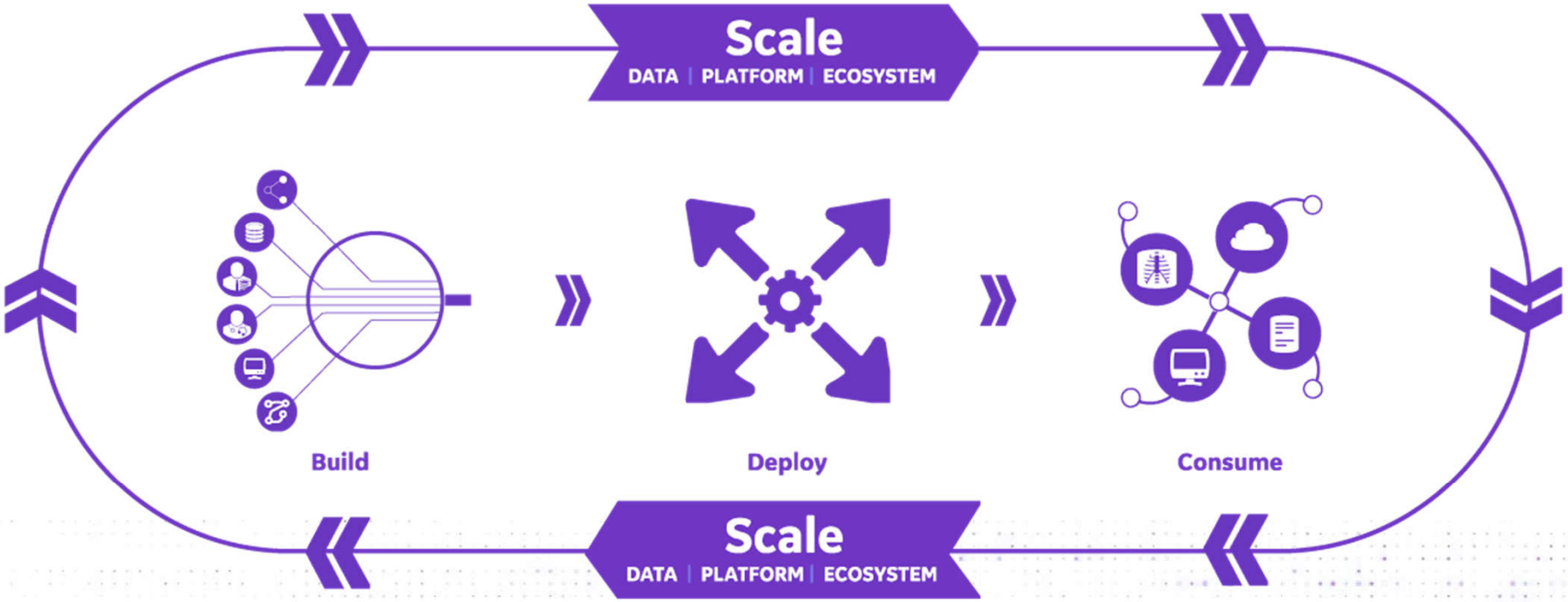


Utilizing Insights to Improve Patient Outcomes: Quality • Access • Costs

GE HealthCare

Stages of Building an Algorithm Model for Deep Learning

Increasing Clinical Outcomes with Speed



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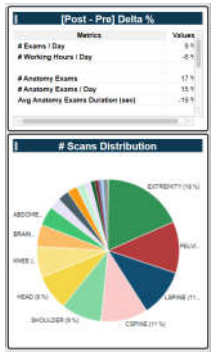
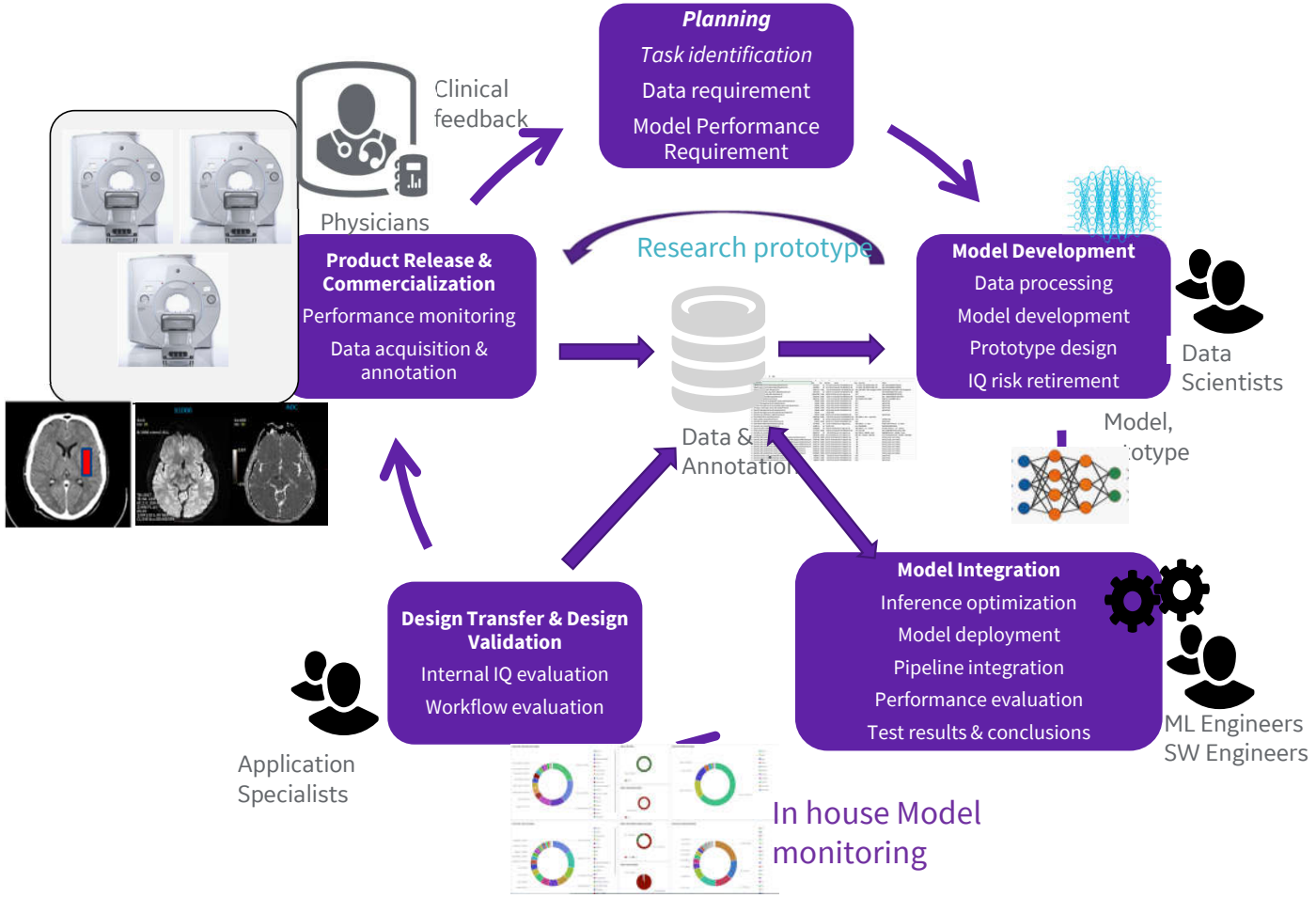
AI Application Development Process

Model monitoring





GE HEALTHCARE AI PRINCIPLES

GE Healthcare will apply these AI principles to help improve healthcare quality, cost, access and the patient experience, in the pursuit of Precision Health. AI Systems exist to augment human intelligence, elevate clinical care teams and must:

Be designed for the benefit, safety and privacy of the patient

Be a trusted steward of the data and insights

Be transparent and deliver robust and reproducible results

Guard against creating or reinforcing bias

Relevant Regulations and Standards for AI

- **FDA Guidance**
  - *Clinical and Patient Decision Support Software - Draft Guidance for Industry and Food and Drug Administration Staff - December 08, 2017*
  - *Computer-Assisted Detection Devices Applied to Radiology Images and Radiology Device Data – Premarket Notification [510(k)] Submission, July 2012*
  - *Clinical Performance Assessment: Considerations for Computer-Assisted Detection Devices Applied to Radiology Images and Radiology Device Data, July 2012*
- *Software as a Medical Device (SAMD): Clinical Evaluation - Guidance for Industry and Food and Drug Administration Staff - December 08, 2017*
- *Proposed Regulatory Framework for Modifications to Artificial Intelligence/Machine Learning (AI/ML)-Based Software as a Medical Device (SaMD) – April 2019*
- Ethics of AI in Radiology: European and North American Multisociety Statement (Draft, 2019)
- China NMPA Deep Learning Medical Device Software Review Points Guidance (Draft, 2019)
- The EU General Data Protection Regulation (GDPR) replaces the Data Protection Directive 95/46/EC
- Standard for Reporting Diagnostic Accuracy Studies: STARD 2015: An Updated List of Essential Items for Reporting Diagnostic Accuracy Studies
- ISO Standards for AI: ISO/IEC JTC 1/SC 42

AI Products in GE HealthCare

AIR™ Recon DL

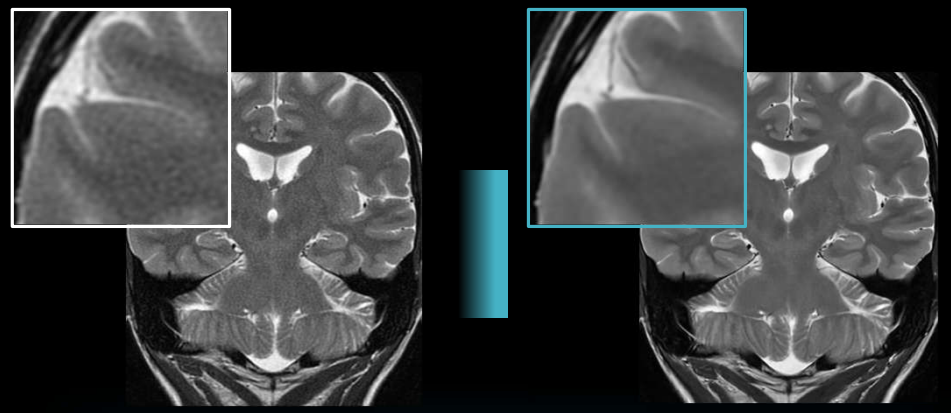
AIR™ Recon DL, one of the most successful and impactful innovation by GE HealthCare MR in 2 decades.

- Uses Deep-Learning technology to remove image noise and ringing by leveraging raw data
- Delivers sharper, clearer, accurate MR images without scan time extension.
- Improves patient comfort and increases productivity by enabling shorter scan times

For clinicians: Obtain easy and confident diagnosis with sharper, clearer, accurate MRI images.

For hospital: Keep up with MR schedule and maximize MR scan slots.

For patients: Comfortable MRI experience by scan time reduction, up to 50%.



*As of May 2023
** calculated by IB data with estimation 20 scans per day, 5.5 working day in a week, fully start using AIR™ Recon DL 4 weeks after delivery, as of May 2023

MR has a fundamental trade-off between SNR, resolution and scan time…

AIR™ Recon DL improves SNR
→ With using the improved SNR, we can improve resolution and minimize scan time

AIR™ Recon DL | how it works…
Apply regular acceleration techniques to reduce scan time then improve IQ with AIR™ Recon DL.

Typical Routine Protocol

0.8 x 1.2 x 4 mm
2 NEX
31 kHz Bandwidth
2:49 min

Changes Bandwidth

0.8 x 1.2 x 4 mm
2 NEX
50 kHz Bandwidth
1:43 min

Increase Resolution

0.7 x 1.1 x 4 mm
1 NEX + ARC
50 kHz Bandwidth
57 seconds

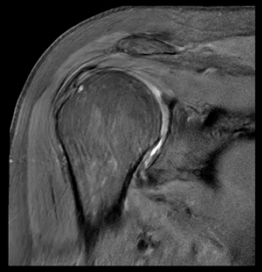
AIR™ Recon DL

0.7 x 1.1 x 4 mm
1 NEX + ARC
50 kHz Bandwidth
57 seconds

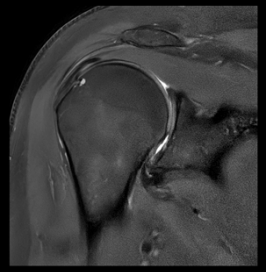
This is just the beginning…

AIR™ Recon DL | **PROPELLER**

Conventional

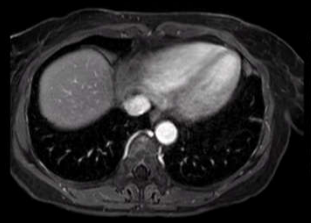


AIR™ Recon DL

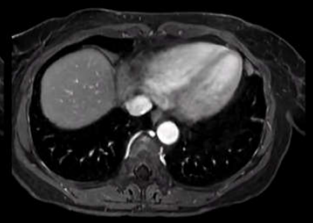


AIR™ Recon DL | **3D**

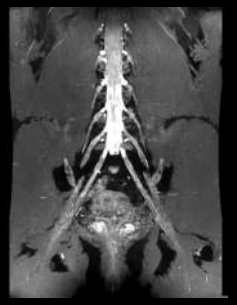
Conventional 3D



AIR™ Recon DL 3D

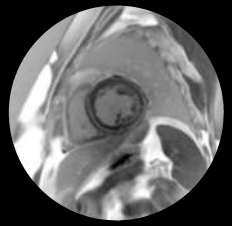


AIR™ Recon DL | MENSA NERVE*

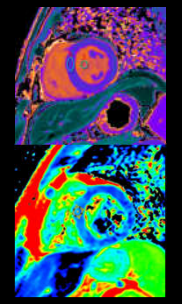


AIR™ Recon DL | **Cardiac**

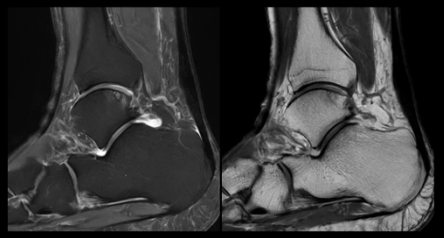
AIR™ Recon DL
Single Shot PS MDE
with Respiratory Triggering



AIR™ Recon DL
T1 & T2 Mapping

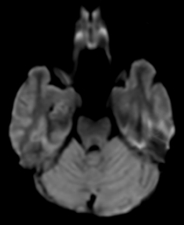


AIR™ Recon DL | **More**

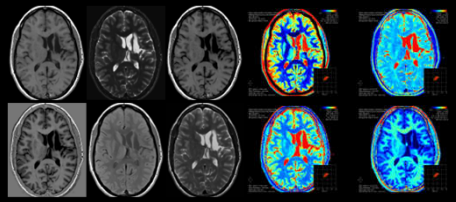


AIR™ Recon DL
FSE Flex

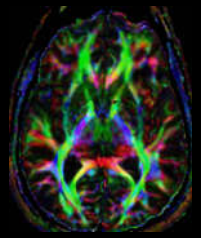
AIR™ Recon DL
PSIR*



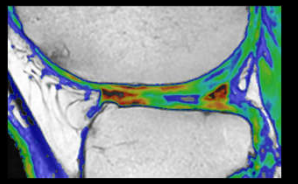
AIR™ Recon DL
PROGRES*



AIR™ Recon DL
MAGiC*



AIR™ Recon DL
DTI



AIR™ Recon DL
CartiGram (T2 Mapping)

GE HealthCare

* Not yet CE marked. Not available for sale in all regions.

WHAT ARE OUR CUSTOMERS SAYING?

Here is what readers from 10 clinical sites said about 133 AIR™ Recon DL cases

100% said:

“ AIR™ Recon DL provided better **SNR**

100% said:

“ AIR™ Recon DL provided better or equivalent image **SHARPNESS**

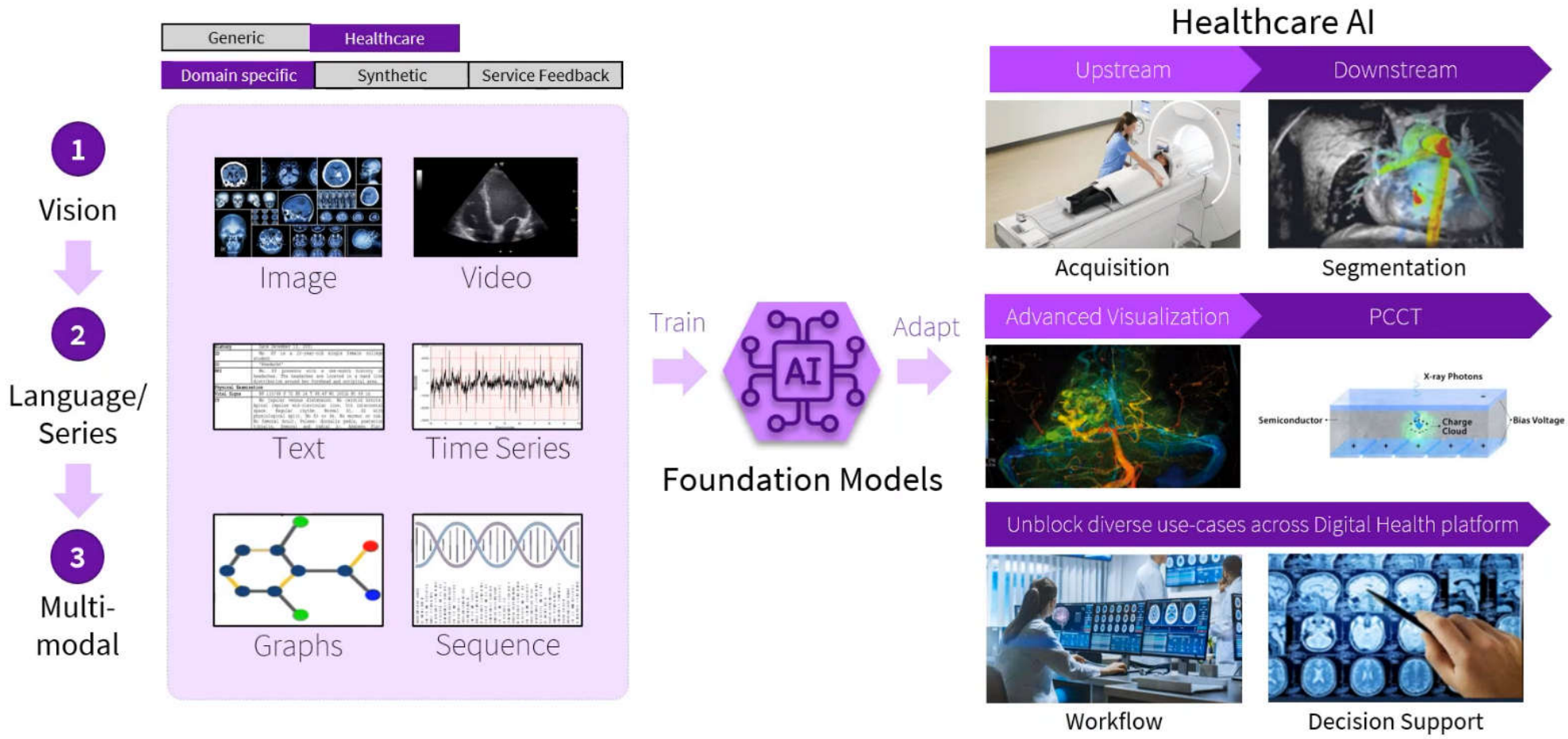
99% said:

“ AIR™ Recon DL provided better or equivalent **LESION CONSPICUITY**

What’s next on AI?

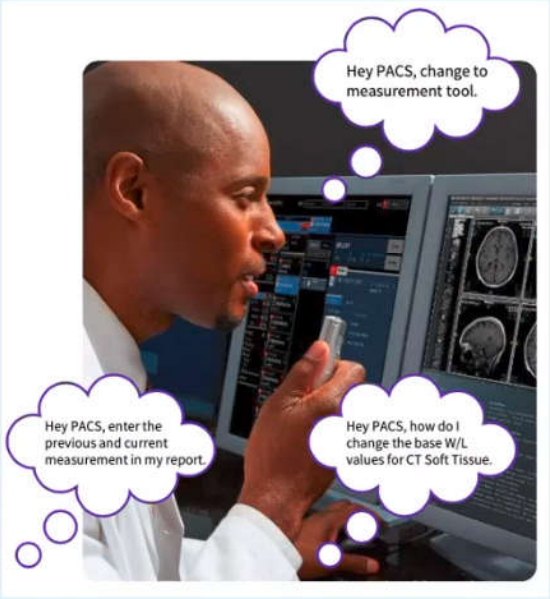
Generative AI in GE HealthCare

Generative AI as a Transformative Power of Model HealthCare



Improving Clinical and Operational Efficiencies

Ability to interact with PACS using **voice control** improves **clinical and operational efficiencies.**



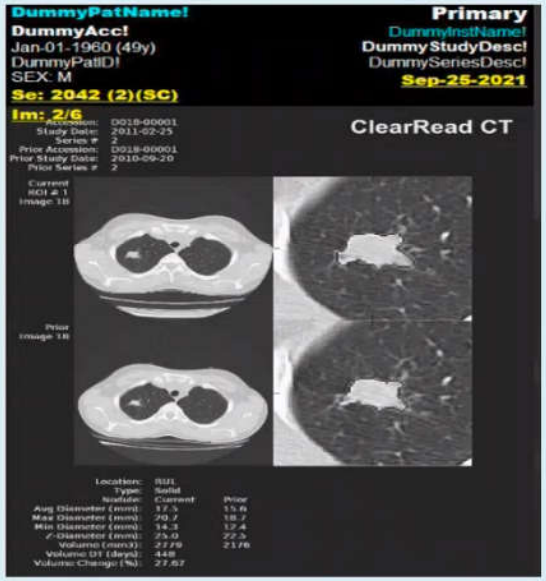
Intelligent Workflow

Automatic imaging report generation (from measurement values from PACS to report) with **reference** and **explanation**.

Commonly Captured Data	Example	
Lesion(s)	Lung Lesion	Adrenal Lesion
	Liver Lesion	Renal Lesion
	Miscellaneous	
Organ Enlargement	Liver	Spleen
Vascular Enlargement	Aorta	Pulmonary Artery
	Heart	
Bone Deformity	Spine/Scoliosis	Leg Length
	Miscellaneous	Fracture Alignment
	Fracture Angle	
US / DEXA	Typically captured in SR Data and Sent to PowerScribe	

Explainable Report Automation

Relevant prior study retrieval for improved treatment outcome understanding.



Smart Clinical Decision Support

关爱每个人的生命重要时刻

共创无界的医疗关爱

GE HealthCare

Create A World Where Healthcare Has No Limits